REMARKS

Please reconsider the application in view of the following remarks. Applicant thanks the Examiner for indicating that claims 5, 6, 9, 10, 13-17, and 20-26 contain allowable subject matter.

Disposition of Claims

Claims 1-27 were pending in this application. Claims 1, 5, 9, 15, 23, and 27 are independent.

Claim amendments

Independent claims 1 and 27 have been amended by way of this reply. These claims also have been amended to correct grammatical errors and to explicitly recite that the light source of the light detector is immersed in the liquid in the water circuit cooling the internal combustion engine. No new matter has been added, as support for these amendments may be found, for example, on page 1, line 4 of the present application. Furthermore, these amendments do not raise new issues or require new search, or at least simplify issues for appeal. Accordingly, entry and favorable consideration is respectfully requested.

Claims 3, 4, 6, 8, 10, 12, 13, 14, 16, 17, 20, 21, 22, 24, 25, and 26 have been amended to correct minor errors. Also, claims 21 and 25 have been amended to recite "a periodic signal is supplied to the client system by the interface module."

Claims 5 and 9 have been amended to be in independent form including all of the limitations of the base claim and any intervening claims. Claims 15 and 23 have been amended to be in independent form including all of the limitations of the base claim and any intervening claims and to remove the limitations of "the light source and the light detector are immersed in the liquid." These claims also have been amended to correct grammatical errors.

Accordingly, because claims 5, 9, 15, and 23 have been amended to be in independent form including all of the limitations of the base claim and any intervening claims, as suggested by the Examiner, amended independent claims 5, 9, 15, and 23 and these dependent claims are now allowable.

Claim Objections

Claims 15, 17, 21, 23, and 25 stand objected for insufficient antecedent basis for reciting the limitations "the interface module." With respect to claims 15 and 17, claim 15 has been amended to clarify the antecedent basis for reciting the limitations "the interface module," as set forth above, and claim 17 is dependent from claim 15. With respect to claims 21, 23, and 25, Applicant respectfully disagrees because previous claims 21 and 23 clearly recited "an interface module" and previous claim 25 was dependent from previous claim 23 indirectly. However, claims 21 and 23 have been amended to clarify the antecedent basis for reciting the limitations "the interface module," as set forth above, and claim 25 is dependent from amended claim 23. Accordingly, withdrawal of this objection is respectfully requested.

Claim Rejections under 35 U.S.C. § 112

Claims 15-17 and 23-26 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Particularly, the Examiner alleges that dependent claims 15, 17, 23, 25, and 26 introduce contradictory limitations. Applicant has amended the claims 15 and 23 to remove the alleged contradictory limitations of "wherein the light source and the light detector are immersed in the said liquid." Claims 16 and 17, and claims 24-26 are, directly or indirectly, depends from claims 15 and 23 respectively. Accordingly, the withdrawal of this rejection is respectfully requested.

Claim Rejections under 35 U.S.C. § 103

Claims 1, 2, 11, 19, and 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,740,709 to Leighton *et al.* (hereinafter "Leighton") in view of U.S. Patent No. 5,625,229 to Krieg *et al.* (hereinafter "Krieg").

Independent claims 1 and 27 have been amended to explicitly recite that the light source and the light detector are immersed in the liquid in the water circuit cooling the internal combustion engine. To the extent that this rejection may still apply to the amended claims, the rejection is respectfully traversed for the reasons set forth below.

One or more embodiments of the present invention are directed to a detection of gas bubbles in a water circuit for cooling an internal combustion engine of a motor vehicle (*see,* Specification, page 1, lines 3-5).

Accordingly, independent amended claims 1 and 27 require, in part, "[a] process for detection of gas bubbles in a liquid in a water circuit for cooling an internal combustion engine," and "wherein the light source and the light detector are immersed in the liquid in the water circuit cooling the internal combustion engine."

To establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), the Examiner must show that the prior art references, when combined, teach or suggest all of the claim limitations (*see* MPEP § 2143). Applicant respectfully asserts that whether considered separately or in combination, Leighton and Krieg do not show or suggest all of the limitations of amended independent claims 1 and 27.

In contrast to amended independent claims 1 and 27, Leighton fails to show or suggest at least that the light source and the light detector are immersed in the water circuit cooling the internal combustion engine, as required by amended independent claims 1 and 27. In fact, Leighton merely teaches that the light source 11 and the sensor 12 are immersed in a culture liquid to calculate the cell density of microbes (*see* Leighton, column 1, lines 10-12 and 44-50).

Krieg is also completely silent with respect to wherein the light source and the light detector are immersed in the liquid of the water circuit cooling the internal combustion engine, as recited by amended independent claims 1 and 27. In fact, Krieg merely teaches the method for detecting the particles in a liquid of an infusion bottle 7. (*see* Krieg, column 5, line 34).

Further, Applicant respectfully asserts that Krieg is non-analogous art to the present application and, accordingly, it is improper to apply Krieg against the present claims. It is well settled that "in order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned" (*see* MPEP § 2141). As such,

reference is not available under 35 U.S.C. § 103 if it is not within the field of the inventors endeavor and was not directly pertinent to the particular problem with which the inventor was involved (*see King Instrument Corp. v. Otari Corp.*, 226 U.S.P.Q. 402 (Fed. Cir. 1985)).

Applicant respectfully asserts that the cited Krieg reference is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which Applicant was concerned. Indeed, the field of Applicant's endeavor, as now explicitly reflected in amended independent claims 1 and 27, relates to detection of gas bubbles in a water circuit for cooling an internal combustion engine of a motor vehicle (*see* Specification, page 1, lines 3-7). In clear contrast to the field of Applicant's endeavor, Krieg relates to method for detecting foreign bodies in infusion liquids in infusion bottles (*see* Krieg, column 1, lines 4-16). Thus, Krieg is far removed from the field of Applicant's endeavor, i.e., the field of detection of gas bubbles in a water circuit for cooling an internal combustion engine of a motor vehicle.

Furthermore, Krieg is not pertinent to the problems with which Applicant was involved. As explained in the present specification, for example, "the presence of a significant quantity of bubbles is detected just as rapidly as that of a small quantity. However, small quantity of bubbles are to be analyzed more finely to ensure that detection is founded and to prevent an alarm from being triggered unnecessarily," and the claimed invention is directed toward solving this problem (among other things) (*see* Specification, page 2, lines 20-25). In contrast, the teachings of Krieg are irrelevant to solving the problems that the presence of a significant quantity of bubbles is detected just as rapidly as that of a small quantity. Instead, Krieg is focused on solving problems associated with foreign particles, whose size is approximately 50 micrometers, that create the danger of plugging up the bore of an infusion needle (*see* Krieg, column 1, lines 14-25 and column 2, lines 16-21). That is, Krieg is focused on detecting the

particle whose size is approximately 50 micrometers, not a quantity of bubbles. Therefore, Krieg is clearly not reasonably pertinent to the particular problem with which Applicant was concerned.

In view of the above, Leighton and Krieg, whether taken separately or in combination, fail to show or suggest the invention as recited in independent claims 1 and 27. Further, cited Krieg reference is non-analogous art and it is improper to cite Krieg against the pending claims. Thus, amended independent claims 1 and 27 are patentable over Leighton and Krieg for at least the reasons set forth above. Claims 2-4, 6-8, 11-14, and 18-22, directly or indirectly dependent from claim 1, are patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 17198/004001).

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Respectfully submitted,

By _____

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